

Appl. No. 10/665,974  
Prelim. Amdt. dated February 2, 2005

PATENT

Amendments to the Claims:

Claims 18 and 42 are amended. Claims 1-17 and 24-41 are canceled. Claims 54-68 are added. This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1-17 (canceled)

18. (currently amended) A method of treating a patent foramen ovale, the method comprising:

advancing a [catheter having a proximal end, a distal end and a] closure device near [the] a distal end of [the] a catheter into the tunnel of the patent foramen ovale; and applying energy to the closure device to cause adhesion between the closure device and tissue [adjacent] of the patent foramen ovale, thereby fixing the closure device within the tunnel of the patent foramen ovale.

19. (original) A method as in claim 18, wherein bipolar radiofrequency energy is used to cause adhesion of the closure device to the tissue.

20. (original) A method as in claim 18, wherein monopolar radiofrequency energy is used to cause adhesion of the closure device to the tissue.

21. (original) A method as is claim 18, wherein applying energy to the closure device comprises applying energy to at least one bioresorbable matrix.

22. (original) A method as is claim 18, wherein applying energy to the closure device comprises applying energy to at least one non-resorbable patch.

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23. (original) A method as in claim 22, wherein the energy is applied to a patch comprising at least one of a tissue adhesive and a tissue solder.

24-41 (canceled)

42. (currently amended) Apparatus for treating a patent foramen ovale, the apparatus comprising:

an elongate catheter body having a proximal end and a distal end; and  
at least one energy transmission member coupled with the catheter body adjacent the distal end for transmitting energy to a closure device and tissue [adjacent] of the patent foramen ovale to induce closure of the patent foramen ovale.

43. (original) Apparatus as in claim 42, wherein the closure device is mounted on the at least one energy transmission member.

44. (original) Apparatus as in claim 42, wherein the closure device spans two or more energy transmission members.

45. (original) Apparatus as in claim 42, wherein the energy transmission member transmits at least one of radiofrequency, resistive heating, ultrasound, microwave and laser energy.

46. (original) Apparatus as in claim 42, wherein the at least one closure device comprises a bioresorbable matrix.

47. (original) Apparatus as in claim 42, wherein the at least one closure device comprises a non-resorbable patch.

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48. (original) Apparatus as in claim 42, further including at least one backstop member coupled with the catheter for engaging left atrial tissue adjacent the patent foramen ovale to enhance positioning of the patch within the tunnel.

49. (original) Apparatus as in claim 42, further including at least one expandable balloon member for deploying the patch within the tunnel.

50. (original) Apparatus as in claim 42, wherein two or more catheter elements apply lateral force to the patent foramen ovale prior to and/or during closure.

51. (original) Apparatus as in claim 50, wherein the two or more catheter elements further apply dilatory forces to the patent foramen ovale prior to and/or during closure.

52. (original) Apparatus as in claim 42, wherein transmission of energy to the closure device activates a tissue solder or tissue adhesive to cause fixation of the closure device to tissue of the patent foramen ovale.

53. (original) Apparatus as in claim 42, wherein the at least one energy transmission member transmits energy through a conductive or low resistance/impedance plane or pathway of the closure device.

54. (new) A method as in claim 18, wherein the closure device is advanced such that no part of the closure device extends into the left atrium.

55. (new) A method as in claim 18, further comprising applying lateral force to the patent foramen ovale with the closure device.

56. (new) A method as in claim 55, further comprising applying dilatory force to the patent foramen ovale with the closure device.

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57. (new) A method as in claim 18, wherein the energy is applied via at least one energy transmission member disposed near the distal end of the catheter.

58. (new) A method as in claim 18, wherein applying energy comprises applying resistive heating, ultrasound, microwave or laser energy.

59. (new) A method as in claim 18, wherein the energy is applied through a conductive or low-resistance plane of the closure device.

60. (new) A method as in claim 22, further including expanding an expandable balloon member near the distal end of the catheter to deploy the patch within the tunnel of the patent foramen ovale.

61. (new) Apparatus as in claim 42, wherein the at least one closure device is doped with materials which aid in conduction or reduce resistance or impedance.

62. (new) Apparatus as in claim 54, wherein the doped materials form specific pathways of increased conduction, or reduced resistance or impedance.

63. (new) Apparatus as in claim 54, wherein the doping materials are selected from the group consisting of gold, platinum, iridium, tantalum, tungsten, sodium chloride, alloys or combinations thereof, and resorbable metals such as iron and nickel alloys.

64. (new) Apparatus as in claims 42, wherein the at least one closure device further comprises at least one tissue solder or adhesive.

65. (new) Apparatus as in claims 42, wherein the at least one closure device is designed to absorb blood, the blood acting as an autologous tissue adhesive.

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66. (new) Apparatus as in claim 42, wherein the closure device expands to fill the tunnel of the patent foramen ovale.

67. (new) Apparatus as in claim 42, wherein application of energy to the closure device causes the closure device to conform to geometry of the patent foramen ovale.

68. (new) Apparatus as in claim 42, wherein application of energy to the closure device fixes the device to tissue of the patent foramen ovale.